



Smart Water.
Clean Energy.
Better World.

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INPIPE[®]
ENERGY

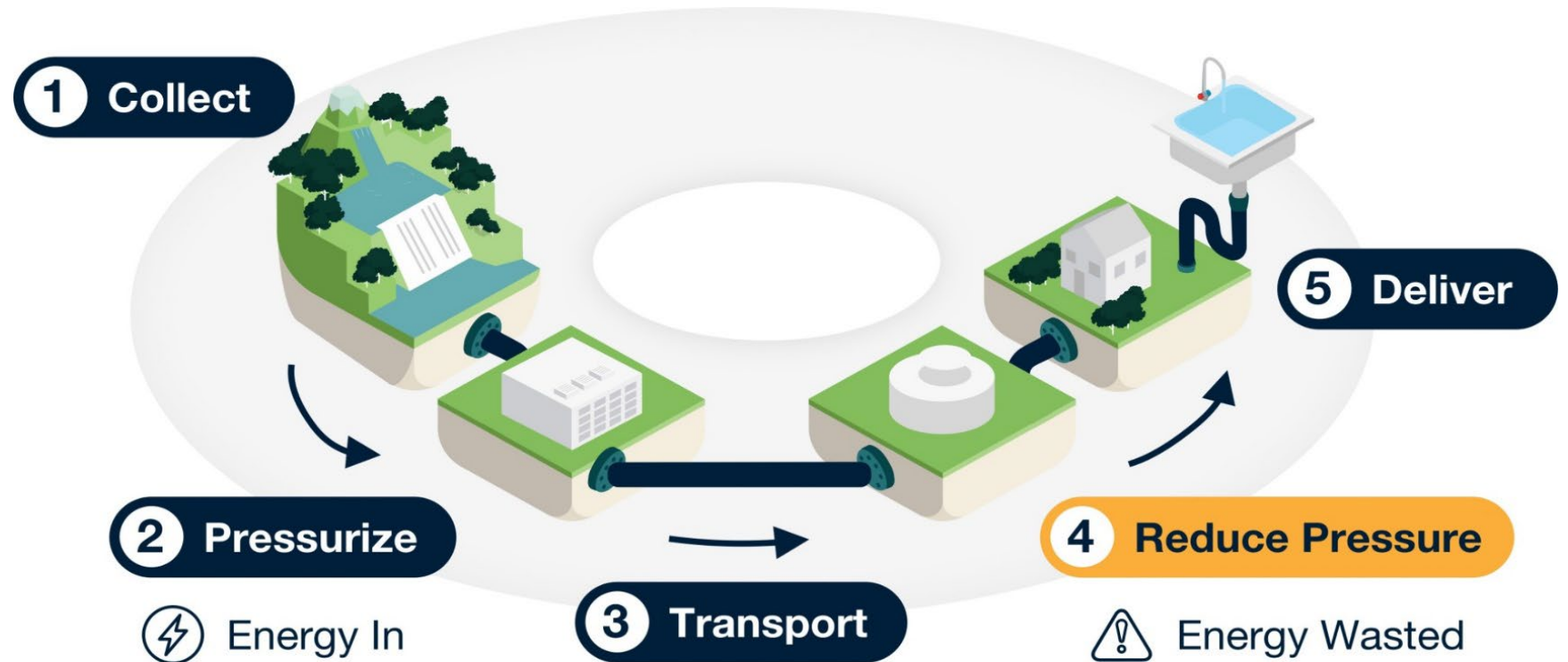
Delivery is energy and carbon intensive

Electricity can be up to 40% of budget.

~12 GW Energy available *

equivalent to 12.6M US homes*

~1.2 billion tons of carbon savings



Sources: Mueller Water Products, US EPA, EIA,
*Assumes 0.990 lbs. CO₂/kWh, 10,972 kWh/yr. average US household

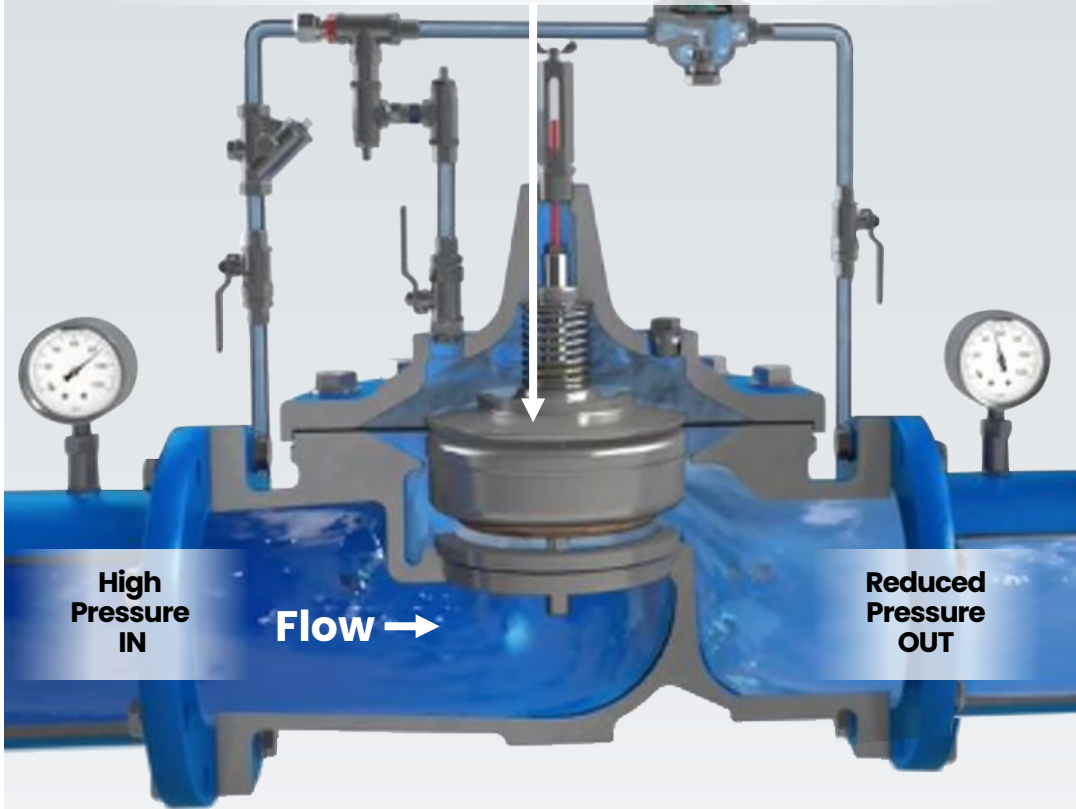


Standard Control Valve

Wasted Energy in Pressure Control

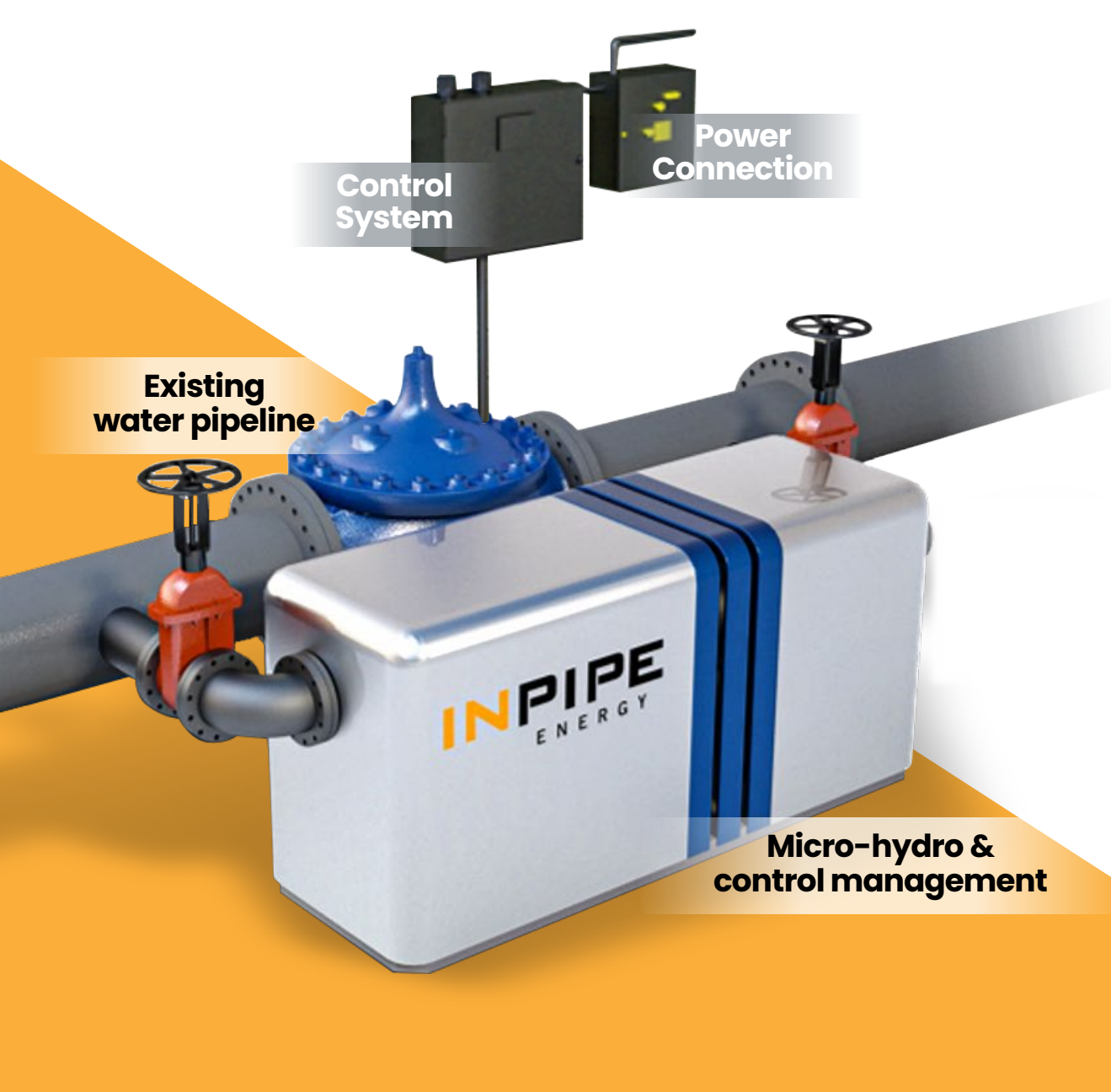
Typical control valve used in water conveyance. Millions of these exist throughout water distribution to control flow and manage pressure.

Standard control valves use a friction mechanism to manage pressure in water pipelines.



Wasted Energy in Pressure Control

The mechanism used by control valves can waste as much as 2 MW of energy and emit 90,000 tons of carbon per valve.

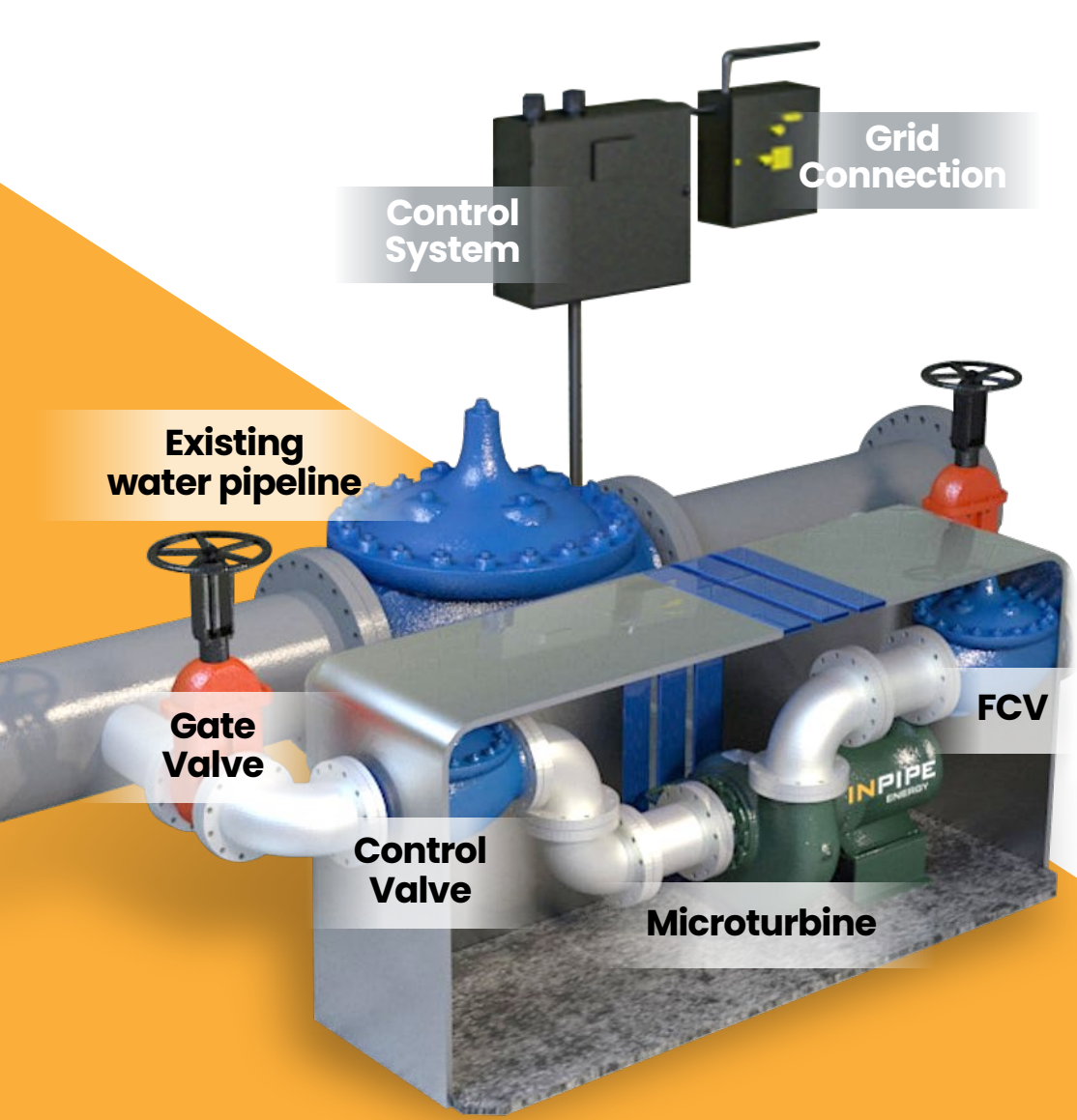


The HydroXS[®]

The HydroXS's key advantage is capturing wasted energy and turning it into a useful resource – electricity. Other benefits include:





- 1 Cost savings
- 2 Reduced carbon emissions
- 3 Improved, real-time data capture
- 4 Reduced water loss

US Patented



How the HydroXS Works

The HydroXS precisely controls pressure while generating renewable energy.

-  Installs easily
-  Grid connects same as solar systems.
-  1/3 the cost of alternatives
-  Made in the U.S.A.

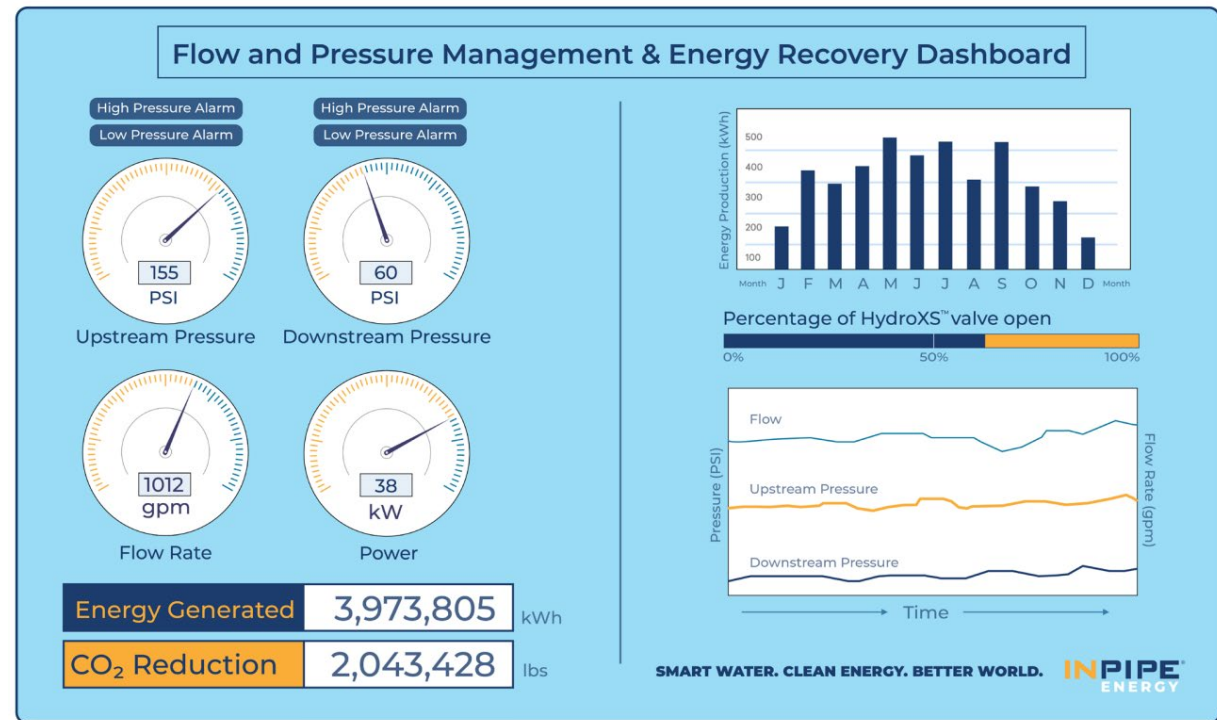
US and International Patents Pending

Real-time data optimizes pressure management

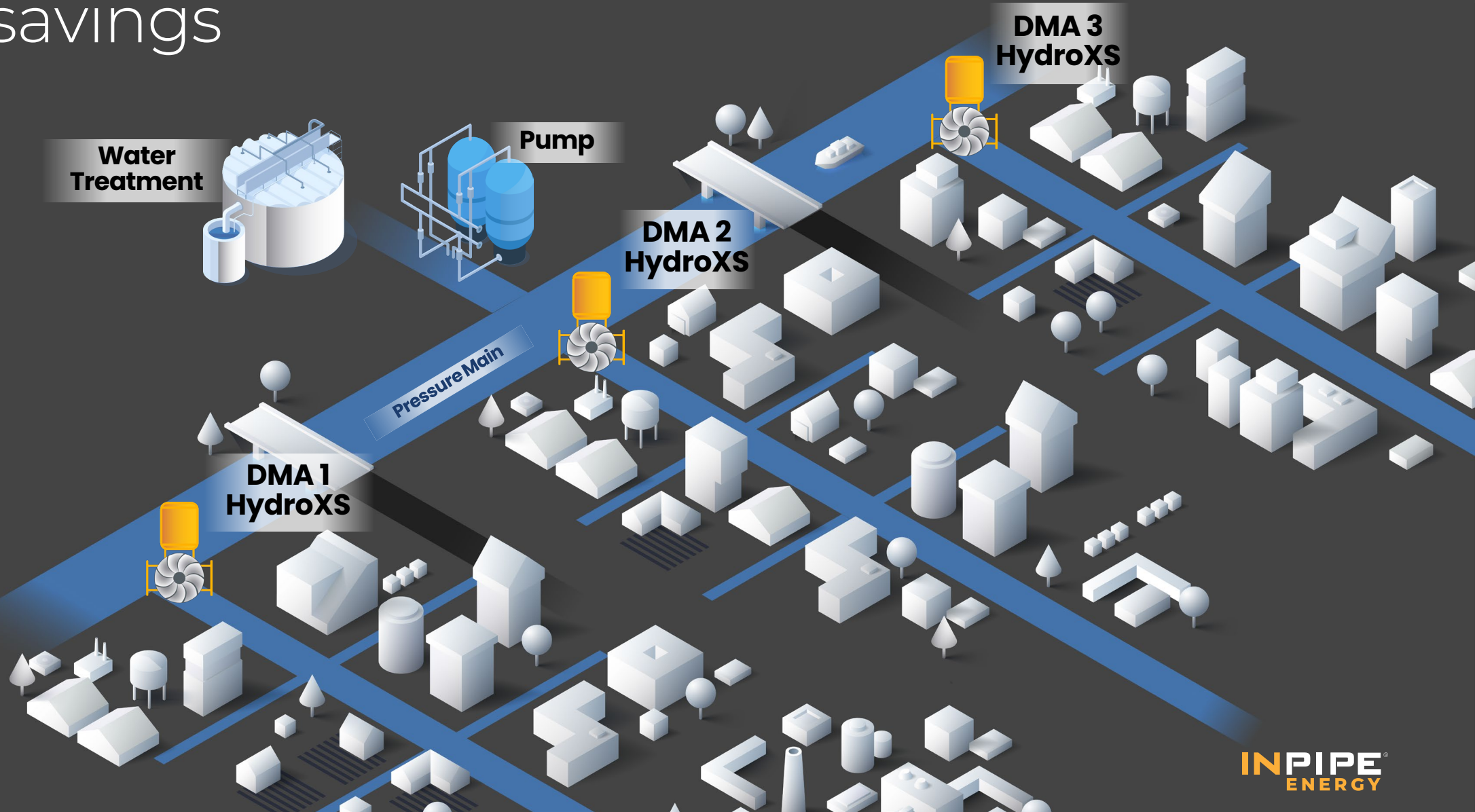
Dashboard Enables

- Secure, remote viewing of critical system hydraulic data.
- Real-time and cumulative reporting of energy production & CO₂ reduction.
- Monitors flow-based pressure management parameters to reduce water loss and pipe breaks.
- Water loss control & DMA for NRW.

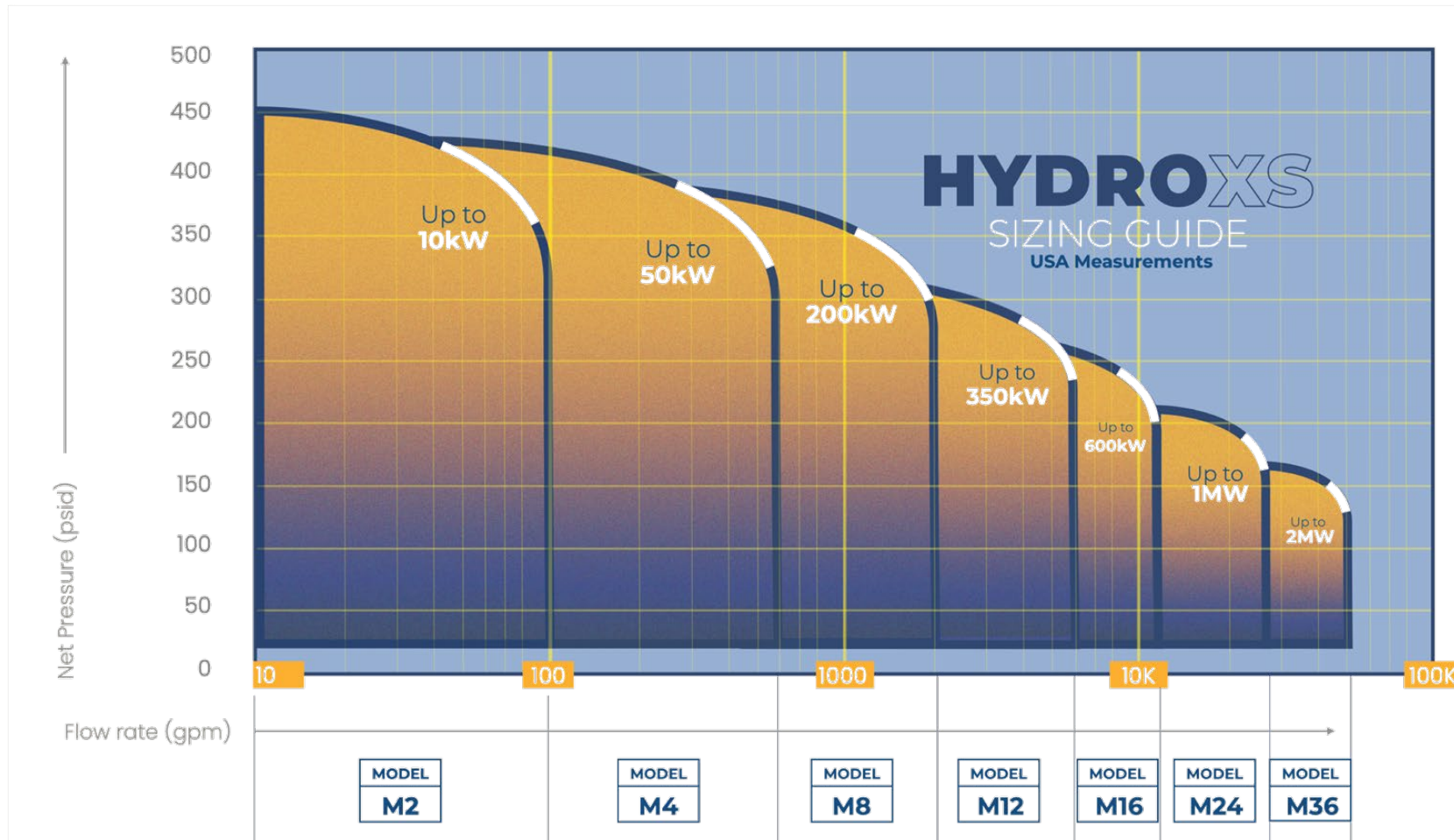
Flow and Pressure Management & Energy Recovery Dashboard



Integrating pressure management with smart controls and real time data results in up to 45% water savings



Ideal Conditions for Energy Generation



7 Standard Models

Site

Gravity-fed, outflow, effluent or excess pressure pipeline

Existing PRV/Flow, sleeve valve, ball valve

Behind-the-meter or grid connection nearby

Hydraulics

Pipe diameters: 2-110 inches

Ideal flow ranges: 1.7 – 60 MGD
(1,200 GPM – 40,000 GPM)

Net pressure: 25+ PSI
(57 Ft of Head)



Hillsboro Water
Existing PRV with a bypass
in a vault below grade.



Hillsboro Water

The HydroXS located in its own separate vault adjacent to existing one on first slide.



The controls cabinet

Ground view of the tops of the two underground vaults

Successful Installations

The Hillsboro Hops Recreation facility

Capacity	30 kW
Energy	200,000 kWhs annually
CO₂ offset	1,400 tons
Energy use	Electricity net metered, used for lighting, EV charging stations and concessions at local sports stadium
Commission date	September 2020

Successful Installations

Skagit PUD Pumping Facility

Capacity	22 kW
Energy	104,000 kWhs annually
CO₂ offset	728 tons
Energy use	Electricity net metered, offsets the cost of pumping
Commission date	July, 2021
Next steps	Currently developing next project to power a local high school









Successful Installations

Pump facility for East Bay Municipal Utility District (EBMUD)

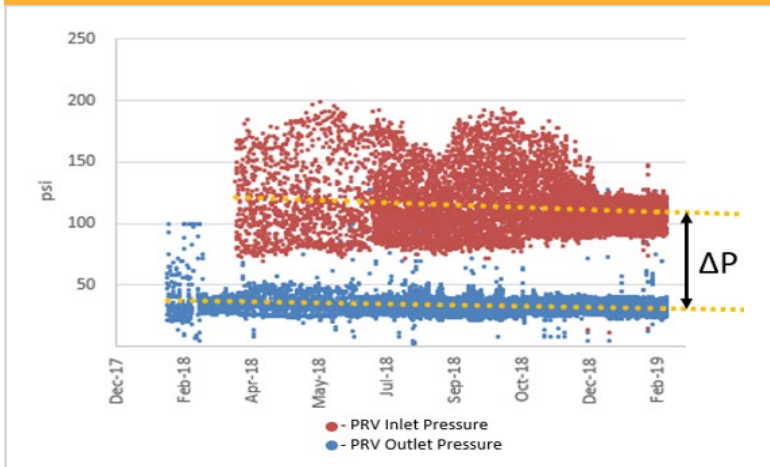
Capacity	30 KW
Energy	150,000 KWH
CO₂ offset	1,050 tons
Energy use	Electricity net metered, offsets the cost of pumping
Structure	InPipe owns, operates and maintains
Commission date	October, 2023

Up to 50% federal incentives to fund infrastructure and DMAs

TYPE	FUNDING SOURCE	COMMENTS
	Inflation Reduction Act of 2022 Investment Credit – Direct pay for public entities	Federal grant paid as a percentage of funds 30% for energy recovery + 10% domestic materials + 10% fossil fuel communities
	Rural Energy for America (REAP) Funds for rural communities	
	Revolving Finance Funds Block grants	
	Section 242 DOE incentive for new hydro production	\$.023 per kWh produced over 10 yr. period

System-Wide Assessment

Input: Pressure and Flow Data



Output: Energy Production Potential



Data Needed

Hourly: flow, upstream pressure, and downstream pressure

- Pipe diameter and material
- Description of the water quality
- As-builts

- Hydraulic and Potential Energy Assessment allows you to identify opportunities.

